1. Determine the horizontal and/or oblique asymptotes in the rational function below.
$$f(x) = \frac{6x^3 - 43x^2 + 86x - 40}{3x^2 - 11x + 6}$$

   A. Horizontal Asymptote of $y = 2.0$

   B. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 2x - 7$

   C. Horizontal Asymptote of $y = 2.0$ and Oblique Asymptote of $y = 2x - 7$

   D. Horizontal Asymptote at $y = 3.0$

   E. Oblique Asymptote of $y = 2x - 7$.
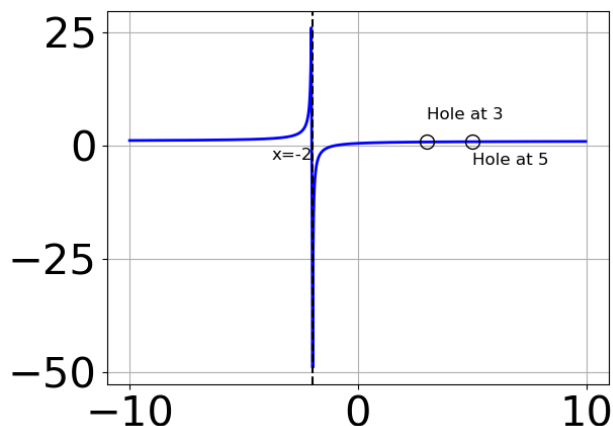
2. Which of the following functions *could* be the graph below?
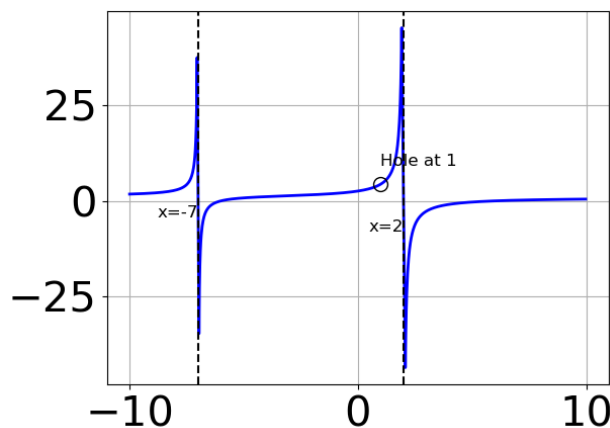
   A. $f(x) = \dfrac{x^3 + x^2 - 36.0x - 36.0}{x^3 - 4.0x^2 - 19.0x - 14.0}$

   B. $f(x) = \dfrac{x^3 + 4.0x^2 - 36.0x - 144.0}{x^3 - 4.0x^2 - 19.0x - 14.0}$

   C. $f(x) = \dfrac{x^3 + 3.0x^2 - 36.0x - 108.0}{x^3 + 4.0x^2 - 19.0x + 14.0}$

   D. $f(x) = \dfrac{x^3 - 1.0x^2 - 36.0x + 36.0}{x^3 + 4.0x^2 - 19.0x + 14.0}$

   E. None of the above are possible equations for the graph.

3. Which of the following functions *could* be the graph below?

A. $f(x) = \dfrac{x^3 - 8.0x^2 + 13.0x - 6.0}{x^3 + 6.0x^2 - x - 30.0}$

B. $f(x) = \dfrac{x^3 + 7.0x^2 + 7.0x - 15.0}{x^3 + 6.0x^2 - x - 30.0}$

C. $f(x) = \dfrac{x^3 - 31.0x - 30.0}{x^3 - 6.0x^2 - x + 30.0}$

D. $f(x) = \dfrac{x^3 - 7.0x^2 + 7.0x + 15.0}{x^3 - 6.0x^2 - x + 30.0}$

E. None of the above are possible equations for the graph.

4. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{6x^3 - 49x^2 + 125x - 100}{9x^2 - 27x + 20}$$

A. Holes at $x = 1.333$ and $x = 1.667$ with no vertical asymptotes.

B. Vertical Asymptote of $x = 0.667$ and hole at $x = 1.667$

C. Vertical Asymptote of $x = 1.333$ and hole at $x = 1.667$

D. Vertical Asymptotes of $x = 1.333$ and $x = 1.667$ with no holes.

E. Vertical Asymptotes of $x = 1.333$ and $x = 2.5$ with a hole at $x = 1.667$

5. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{12x^3 - 25x^2 - 82x - 40}{-6x^3 - 17x^2 + 46x + 24}$$

A. Vertical Asymptote of $y = -1.500$

B. Vertical Asymptote of $y = 4$

C. Horizontal Asymptote of $y = 0$

D. None of the above

E. Horizontal Asymptote of $y = -2.000$

6. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{6x^3 - 11x^2 - 5x + 12}{6x^2 - 23x + 20}$$

A. Vertical Asymptotes of $x = 2.5$ and $x = 1.333$ with no holes.

B. Vertical Asymptotes of $x = 2.5$ and $x = 1.5$ with a hole at $x = 1.333$

C. Vertical Asymptote of $x = 1.0$ and hole at $x = 1.333$

D. Vertical Asymptote of $x = 2.5$ and hole at $x = 1.333$

E. Holes at $x = 2.5$ and $x = 1.333$ with no vertical asymptotes.

7. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{9x^3 + 54x^2 + 80x + 32}{3x^2 + 8x + 4}$$

A. Horizontal Asymptote of $y = 3.0$

B. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 3x + 10$

C. Horizontal Asymptote of $y = -2.0$ and Oblique Asymptote of $y = 3x + 10$

D. Oblique Asymptote of $y = 3x + 10$.

E. Horizontal Asymptote at $y = -2.0$

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8. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{5x^2 + 17x - 12}{10x^3 - 1x^2 - 53x + 30}$$

A. Horizontal Asymptote at $y = -4.000$

B. Oblique Asymptote of $y = 2x - 7$.

C. Horizontal Asymptote of $y = 0$

D. Horizontal Asymptote of $y = 0.500$

E. Horizontal Asymptote of $y = 0.500$ and Oblique Asymptote of $y = 2x - 7$

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9. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{8x^3 + 2x^2 - 27x - 18}{8x^2 - 6x - 9}$$

A. Vertical Asymptote of $x = 1.5$ and hole at $x = -0.75$

B. Vertical Asymptotes of $x = 1.5$ and $x = -1.5$ with a hole at $x = -0.75$

C. Vertical Asymptotes of $x = 1.5$ and $x = -0.75$ with no holes.

D. Vertical Asymptote of $x = 1.0$ and hole at $x = -0.75$

E. Holes at $x = 1.5$ and $x = -0.75$ with no vertical asymptotes.

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10. Determine the vertical asymptotes and holes in the rational function

below.

$$f(x) = \frac{8x^3 - 10x^2 - 13x + 15}{8x^2 - 18x + 9}$$

A. Vertical Asymptotes of $x = 0.75$ and $x = -1.25$ with a hole at $x = 1.5$

B. Vertical Asymptote of $x = 1.0$ and hole at $x = 1.5$

C. Holes at $x = 0.75$ and $x = 1.5$ with no vertical asymptotes.

D. Vertical Asymptotes of $x = 0.75$ and $x = 1.5$ with no holes.

E. Vertical Asymptote of $x = 0.75$ and hole at $x = 1.5$